

### ABSTRACT

A decontamination method and system wherein contaminated nickel anodes are obtained by cutting cylindrical nickel ingots into wafers having a disc shape. Each of the disc-shaped wafers is then used as the anode in an electro-refining process. The anode is dissolved in the process, thereby generating nickel ions and pertechnetate ions in solution. The anolyte chamber of the electro-refining cell is in fluid communication with a technetium trap that removes pertechnetate ions from solution. The wafer anode is of substantially pure nickel that has typically been cut from a larger cylindrical ingot to a thickness of approximately 2.5 inches.

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